AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

Claims 1-19 (cancelled)

Claim 20 (currently amended): A method of preventing or treating a disease in a host, comprising administering to the host an effective amount of ~~the vaccine of claim 1~~ a vaccine comprising a free-living microbe, wherein the nucleic acid of the microbe has been modified by reaction with a nucleic acid targeted compound that reacts directly with the nucleic acid so that the microbe is attenuated for proliferation.

Claim 21 (currently amended): A method of inducing an immune response in a host to an antigen comprising administering to the host an effective amount of ~~the vaccine of claim 1,~~ a vaccine comprising a free-living microbe, wherein the nucleic acid of the microbe has been modified by reaction with a nucleic acid targeted compound that reacts directly with the nucleic acid so that the microbe is attenuated for proliferation, and wherein the microbe expresses the antigen.

Claims 22-82 (cancelled)

Claim 83 (new): The method of claim 20, wherein the nucleic-acid targeted compound is a nucleic acid alkylator.

Claim 84 (new): The method of claim 83, wherein the nucleic acid alkylator is β-alanine, N-(acridin-9-yl), 2-[bis(2-chloroethyl)amino]ethyl ester.

Claim 85 (new): The method of claim 20, wherein the nucleic acid targeted compound is activated by irradiation.

Claim 86 (new): The method of claim 85, wherein the nucleic acid targeted compound is a psoralen compound activated by UVA irradiation.

Claim 87 (new): The method of claim 86, wherein the nucleic acid targeted compound is 4'-(4-amino-2-oxa)butyl-4,5',8-trimethylpsoralen.

Claim 88 (new): The method of claim 20, wherein the microbe comprises a genetic mutation that attenuates the ability of the microbe to repair its nucleic acid that has been modified.

Claim 89 (new): The method of claim 88, wherein the microbe is defective with respect to a DNA repair enzyme.

Claim 90 (new): The method of claim 89, wherein the genetic mutation is in one or more gene selected from the group consisting of *phr*B, *uvr*A, *uvr*B, *uvr*C, *uvr*D and *rec*A.

Claim 91 (new): The method of claim 90, wherein the genetic mutation is in one or more gene selected from the group consisting of *uvr*A, *uvr*B, and *uvr*C.

Claim 92 (new): The method of claim 91, wherein the microbe comprises genetic mutations in both *uvrA* and *uvrB*.

Claim 93 (new): The method of claim 89, wherein the microbe is defective with respect to RecA.

Claim 94 (new): The method of claim 89, wherein the microbe is unable to repair pyrimidine dimers.

Claim 95 (new): The method of claim 89, wherein the microbe is unable to repair interstrand crosslinks.

Claim 96 (new): The method of claim 20, wherein the microbe is a bacterium.

Claim 97 (new): The method of claim 96, wherein the bacterium comprises a genetic mutation that attenuates the ability of the microbe to repair its nucleic acid that has been modified.

Claim 98 (new): The method of claim 97, wherein the bacterium is defective with respect to a DNA repair enzyme.

Claim 99 (new): The method of claim 98, wherein the genetic mutation is in one or more gene selected from the group consisting of *phr*B, *uvr*A, *uvr*B, *uvr*C, *uvr*D and *rec*A.

Claim 100 (new): The method of claim 96, wherein the microbe is *Mycobacterium tuberculosis*.

Claim 101 (new): The method of claim 96, wherein the microbe is *Bacillus anthracis*.

Claim 102 (new): The method of claim 96, wherein the microbe is *Listeria monocytogenes*.

Claim 103 (new): The method of claim 102, wherein the *Listeria* comprises a genetic mutation that attenuates the ability of the microbe to repair its nucleic acid that has been modified.

Claim 104 (new): The method of claim 103, wherein the *Listeria* is defective with respect to a DNA repair enzyme.

Claim 105 (new): The method of claim 104, wherein the genetic mutation is in one or more gene selected from the group consisting of *phr*B, *uvr*A, *uvr*B, *uvr*C, *uvr*D and *rec*A.

Claim 106 (new): The method of claim 105, wherein the *Listeria* comprises a mutation in one or more gene selected from the group consisting of *uvr*A, *uvr*B, and *uvr*C.

Claim 107 (new): The method of claim 106, wherein the *Listeria* comprises at least one mutation in both *uvrA* and *uvrB*.

Claim 108 (new): The method of claim 107, wherein the *Listeria* further comprises a mutation in the *actA* gene, the *inlB* gene, or both genes.

Claim 109 (new): The method of claim 20, wherein the microbe comprises a heterologous nucleic acid sequence encoding an antigen.

Claim 110 (new): The method of claim 20, wherein the vaccine further comprises a pharmaceutically acceptable carrier or an adjuvant.

Claim 111 (new): The method of claim 20, wherein the microbial gene expression of the microbe is substantially unaffected.

Claim 112 (new): The method of claim 20, wherein the disease is an infectious disease.

Claim 113 (new): The method of claim 109, wherein the disease is cancer.

Claim 114 (new): The method of claim 21, wherein the nucleic-acid targeted compound is a nucleic acid alkylator.

Claim 115 (new): The method of claim 114, wherein the nucleic acid alkylator is β-alanine, N-(acridin-9-yl), 2-[bis(2-chloroethyl)amino]ethyl ester.

Claim 116 (new): The method of claim 21, wherein the nucleic acid targeted compound is activated by irradiation.

Claim 117 (new): The method of claim 116, wherein the nucleic acid targeted compound is a psoralen compound activated by UVA irradiation.

Claim 118 (new): The method of claim 117, wherein the nucleic acid targeted compound is 4'-(4-amino-2-oxa)butyl-4,5',8-trimethylpsoralen.

Claim 119 (new): The method of claim 21, wherein the microbe comprises a genetic mutation that attenuates the ability of the microbe to repair its nucleic acid that has been modified.

Claim 120 (new): The method of claim 119, wherein the microbe is defective with respect to a DNA repair enzyme.

Claim 121 (new): The method of claim 120, wherein the genetic mutation is in one or more gene selected from the group consisting of *phr*B, *uvr*A, *uvr*B, *uvr*C, *uvr*D and *rec*A.

Claim 122 (new): The method of claim 121, wherein the genetic mutation is in one or more gene selected from the group consisting of *uvr*A, *uvr*B, and *uvr*C.

Claim 123 (new): The method of claim 122, wherein the microbe comprises genetic mutations in both *uvrA* and *uvrB*.

Claim 124 (new): The method of claim 120, wherein the microbe is defective with respect to RecA.

Claim 125 (new): The method of claim 120, wherein the microbe is unable to repair pyrimidine dimers.

Claim 126 (new): The method of claim 120, wherein the microbe is unable to repair interstrand crosslinks.

Claim 127 (new): The method of claim 21, wherein the microbe is a bacterium.

Claim 128 (new): The method of claim 127, wherein the bacterium comprises a genetic mutation that attenuates the ability of the microbe to repair its nucleic acid that has been modified.

Claim 129 (new): The method of claim 128, wherein the bacterium is defective with respect to a DNA repair enzyme.

Claim 130 (new): The method of claim 129, wherein the genetic mutation is in one or more gene selected from the group consisting of *phr*B, *uvr*A, *uvr*B, *uvr*C, *uvr*D and *rec*A.

Claim 131 (new): The method of claim 127, wherein the microbe is *Mycobacterium tuberculosis*.

Claim 132 (new): The method of claim 127, wherein the microbe is *Bacillus anthracis*.

Claim 133 (new): The method of claim 127, wherein the microbe is *Listeria monocytogenes*.

Claim 134 (new): The method of claim 133, wherein the *Listeria* comprises a genetic mutation that attenuates the ability of the microbe to repair its nucleic acid that has been modified.

Claim 135 (new): The method of claim 134, wherein the *Listeria* is defective with respect to a DNA repair enzyme.

Claim 136 (new): The method of claim 135, wherein the genetic mutation is in one or more gene selected from the group consisting of *phr*B, *uvr*A, *uvr*B, *uvr*C, *uvr*D and *rec*A.

Claim 137 (new): The method of claim 136, wherein the *Listeria* comprises a mutation in one or more gene selected from the group consisting of *uvr*A, *uvr*B, and *uvr*C.

Claim 138 (new): The method of claim 137, wherein the *Listeria* comprises at least one mutation in both *uvrA* and *uvrB*.

Claim 139 (new): The method of claim 138, wherein the *Listeria* further comprises a mutation in the *actA* gene, the *inlB* gene, or both genes.

Claim 140 (new): The method of claim 21, wherein the microbe comprises a heterologous nucleic acid sequence encoding the antigen.

Claim 141 (new): The method of claim 21, wherein the vaccine further comprises a pharmaceutically acceptable carrier or an adjuvant.

Claim 142 (new): The method of claim 21, wherein the microbial gene expression of the microbe is substantially unaffected.

Claim 143 (new): The method of claim 140, wherein the antigen is a tumor antigen.

Claim 144 (new): The method of claim 143, wherein the tumor antigen is mesothelin, SPAS-1, proteinase-3, SP-17, gp100, PAGE-4, TARP, Her-2/neu, WT-1, NY-ESO-1, PSMA, K-ras or CEA, or an antigen derived from mesothelin, SPAS-1, proteinase-3, SP-17, gp100, PAGE-4, TARP, Her-2/neu, WT-1, NY-ESO-1, PSMA, K-ras or CEA.

Claim 145 (new): The method of claim 140, wherein the antigen is an infectious disease antigen.

Claim 146 (new): The method of claim 145, wherein the antigen is derived from a Human Immundeficiency Virus or a hepatitis virus.

Claim 147 (new): The method of claim 146, wherein the antigen is derived from hepatitis C virus.

Claim 148 (new): The method of claim 127, wherein the bacterium is *Salmonella* or *Shigella*.

Claim 149 (new): The method of claim 96, wherein the bacterium is *Salmonella* or *Shigella*.